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Service Manual

416D BACKHOE LOADER

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Product: BACKHOE LOADER
Model: 416D BACKHOE LOADER BFP
Configuration: 416D Backhoe Loader BFP00001-05177 (MACHINE) POWERED BY 3054 Engine

Disassembly and Assembly
416D, 420D, 424D, 428D, 430D, 432D, 438D and 442D Backhoe Loaders Engine Supplement
Media Number -RENR3573-02 **Publication Date -01/09/2009** **Date Updated -30/09/2009**

i01390521

Air Cleaner - Remove and Install

SMCS - 1051-010

Removal Procedure

Start By:

A. Release the pressure in the hydraulic system. Refer to Disassembly and Assembly, "Hydraulic System Pressure - Release".

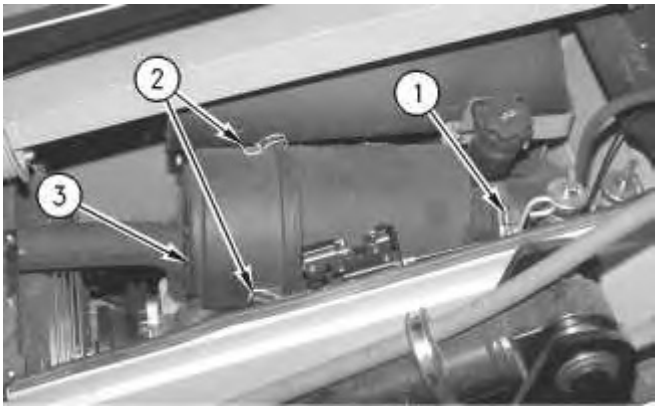

Illustration 1 g00530249

1. Loosen hose clamp (1). Unhook three clips (2) and remove the air cleaner cover (3) .

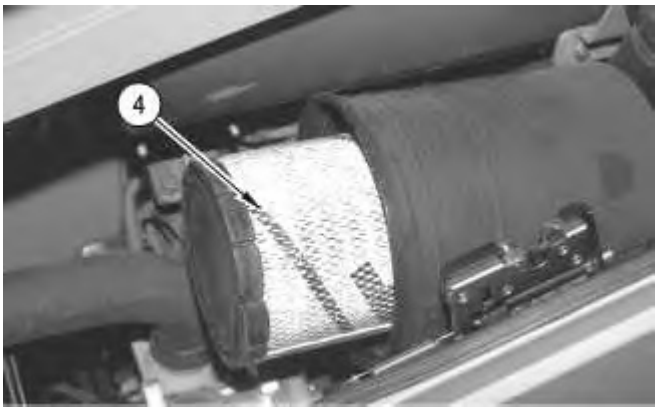

Illustration 2 g00530250

2. Remove the air filter cartridge (4) .

Illustration 3 g00530251

3. Remove air filter cartridge (5), four bolts (6) and air filter housing (7) .

Installation Procedure

Illustration 4 g00530251

1. Install the filter housing (7). Install four bolts (6) and install the air filter cartridge (5) .

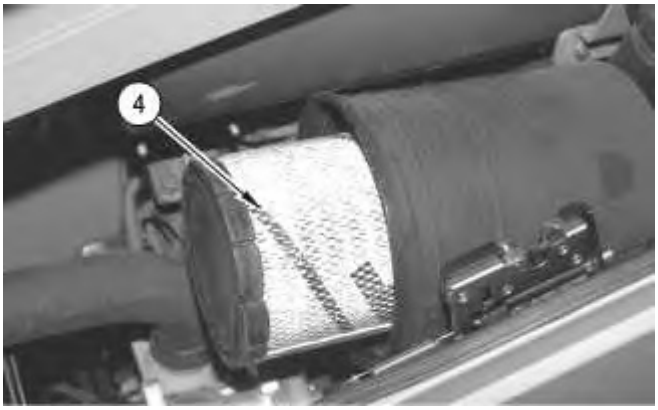

Illustration 5 g00530250

2. Install the air filter cartridge (4) .

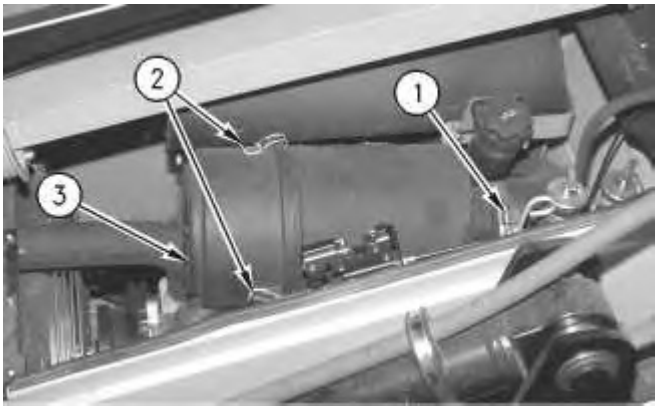

Illustration 6 g00530249

3. Replace air cleaner cover (3) and secure cover (3) with three clips (2). Tighten the hose clamp (1) .

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Product: BACKHOE LOADER
Model: 416D BACKHOE LOADER BFP
Configuration: 416D Backhoe Loader BFP00001-05177 (MACHINE) POWERED BY 3054 Engine

Disassembly and Assembly
416D, 420D, 424D, 428D, 430D, 432D, 438D and 442D Backhoe Loaders Engine Supplement
Media Number -RENR3573-02 **Publication Date -01/09/2009** **Date Updated -30/09/2009**

i01389679

Alternator - Remove and Install

SMCS - 1405-010

Removal Procedure

Start By:

A. Remove the left engine panel. Refer to Disassembly and Assembly, RENR3573, "Engine Cover - Remove and Install".

Note: Put identification on all wires for installation purposes.

1. Disconnect the batteries.

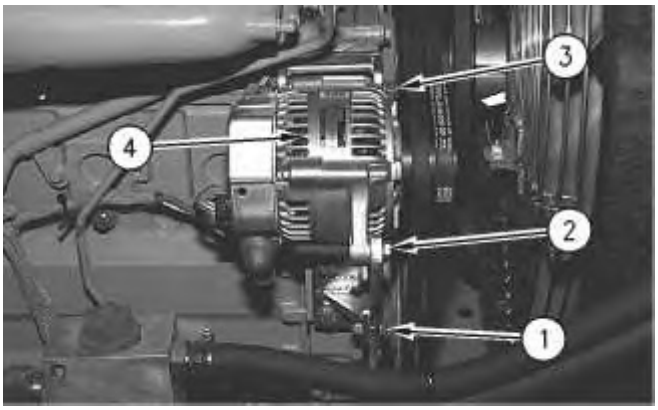

Illustration 1 g00518929

2. Loosen bolt (1), bolt (2), and bolt (3). Slide the alternator toward the engine and disconnect the alternator V-belts.

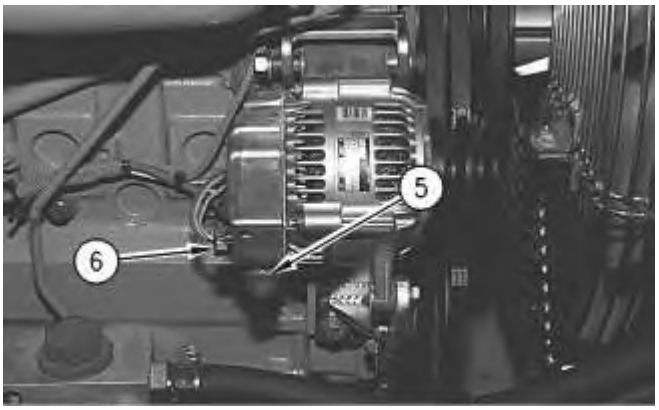

Illustration 2 g00518931

3. Disconnect electrical connection (5) and (6) .

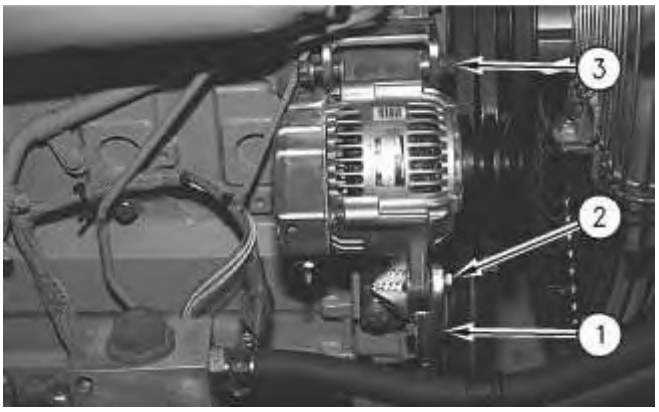

Illustration 3 g00518932

4. Remove bolt (1), bolt (2), and bolt (3). Remove the alternator.

Installation Procedure

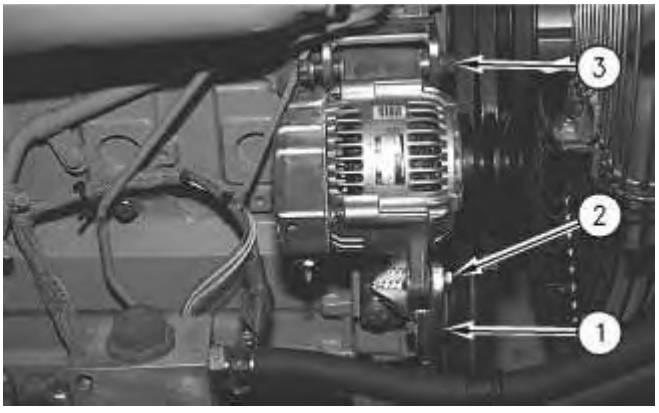

Illustration 4 g00518932

1. Slide the alternator toward the engine and connect the alternator V-belts. Install the alternator. Install bolt (1), bolt (2), and bolt (3).

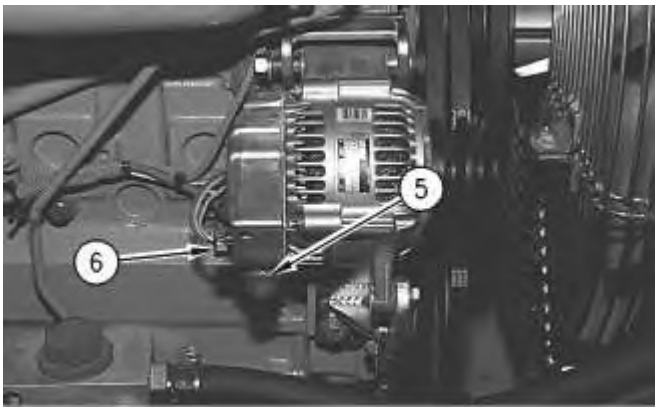

Illustration 5 g00518931

2. Connect electrical connection (5) and (6) .

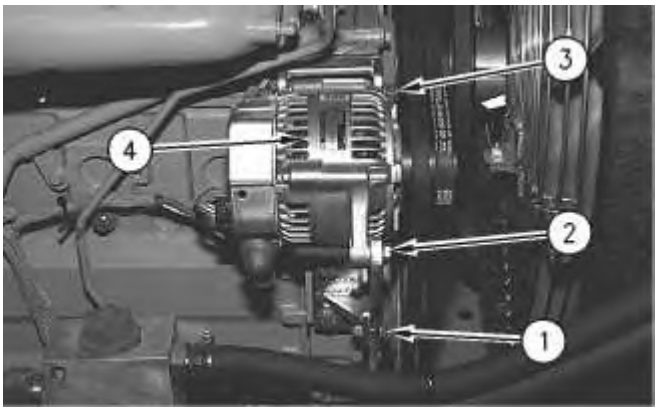

Illustration 6 g00518929

3. Tighten bolt (1), bolt (2), and bolt (3) .
4. Connect the batteries.

Note: For the proper tightening procedures of the V-belt, refer to the Operation and Maintenance Manual, SEBU7399, "V-Belts - Inspect/Adjust/Replace".,

End By: Install the right engine panel. Refer to Disassembly and AssemblyRENR3573, "Engine Cover - Remove and Install".

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Media Number -RENR3573-02 **Publication Date -01/09/2009** **Date Updated -30/09/2009**

i01389778

Crankshaft Pulley - Remove and Install

SMCS - 1205-010

Removal Procedure

Start By:

A. Remove the right engine panel. Refer to Disassembly and Assembly, RENR3573, "Engine Cover - Remove and Install" for the correct procedure.
B. Loosen the alternator. Refer to Disassembly and Assembly, RENR3573, "Alternator - Remove and Install" for the correct procedure.

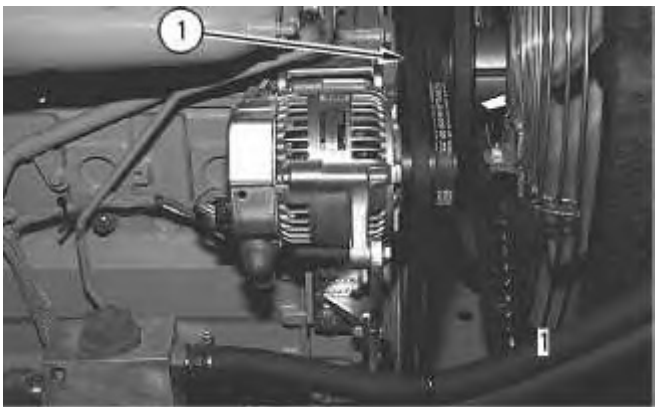

Illustration 1 g00732453

1. Remove the V-Belts (1) .

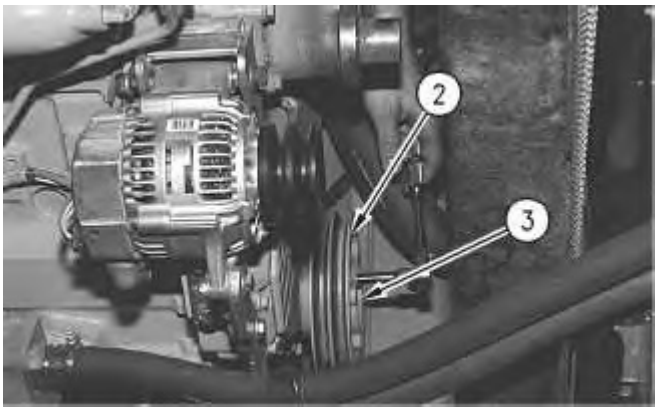

Illustration 2 g00732465

2. Remove three bolts (2) and remove crankshaft pulley (3) .

Installation Procedure

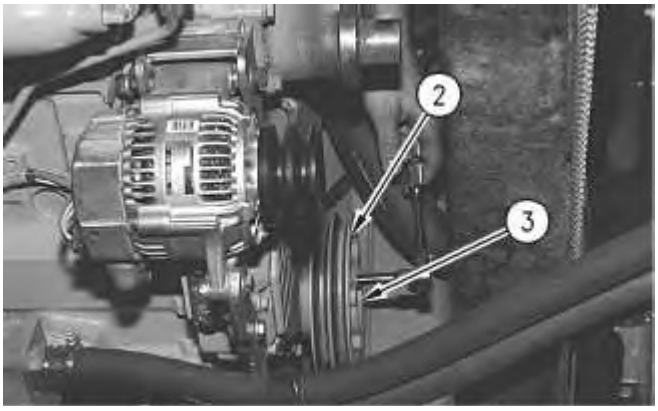

Illustration 3 g00732465

1. Install crankshaft pulley (2) and install three bolts (3). Evenly tighten the bolts to 115 N·m (85 lb ft).

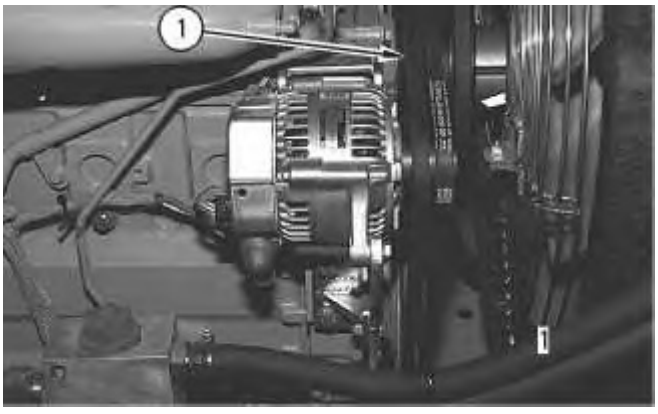

Illustration 4 g00732453

2. Install V-Belts (1) .

   Note: For the proper tightening procedure of the V-Belts, refer to Operation and Maintenance, SEBU7399, "V-Belts - Inspect/Adjust/Replace".

,

End By: Install the engine cover. Refer to Disassembly and AssemblyRENR3573, "Engine Cover-Remove and Install" for the correct procedure.

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i01389659

Electric Starting Motor - Remove and Install

SMCS - 1453-010

Removal Procedure

Start By:

A. Remove the right engine panel. Refer to Disassembly and Assembly, RENR3573, "Engine Cover - Remove and Install".

Note: Put identification tags on all wires for installation purposes.

1. Disconnect the batteries.

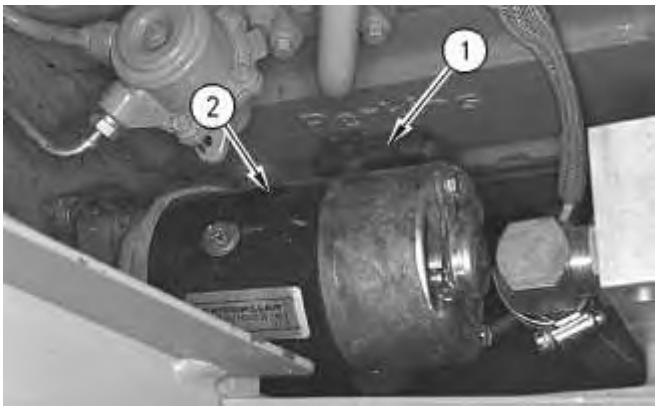

Illustration 1 g00518861

2. Remove wire (1) from starter (2) .

Note: The photograph for Step 3 was taken from the bottom of the starter.

Illustration 2 g00518862

3. Remove wire (3) and wire (4) from the starter.

Illustration 3 g00518863

4. Remove three bolts (5) and remove starter (2) .

Installation Procedure

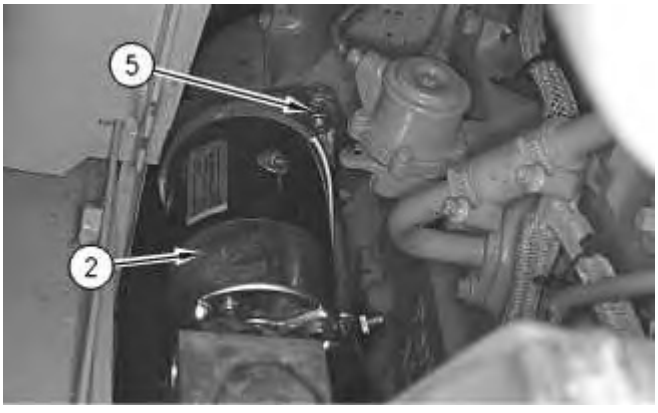

Illustration 4 g00518863

1. Install the starter (2). Install three bolts (5) .

   Note: The photograph for Step 2 was taken from the bottom of the starter.

Illustration 5 g00518862

2. Install wire (4) and wire (3) on the starter.

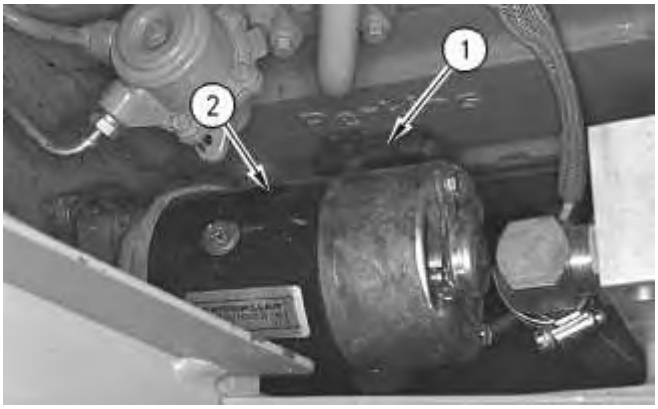

Illustration 6 g00518861

3. Install wire (1) on the starter (2) .
4. Connect the batteries.

,

End By: Install the right engine panel. Refer to Disassembly and AssemblyRENR3573, "Engine Cover - Remove and Install".

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i01439767

Engine and Transmission - Install

SMCS - 1000-012; 1004-012; 3030-012; 3101-012

Installation Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	138-7573	Link Bracket	4
B	6V-3145	Load Leveler	1

Illustration 1 g00753080

1. Attach tool (B) to a suitable lifting device. Attach tool (B) to the engine and to the transmission.
2. Install the engine and the transmission. The weight of the engine and transmission is 680 kg (1500 lb).

Illustration 2 g00753725

3. Install two bolts (59). Tighten bolts (59) to 220 ± 30 N·m (160 ± 20 lb ft).

Illustration 3 g00753634

4. Remove straps (58) and wood block (57) .

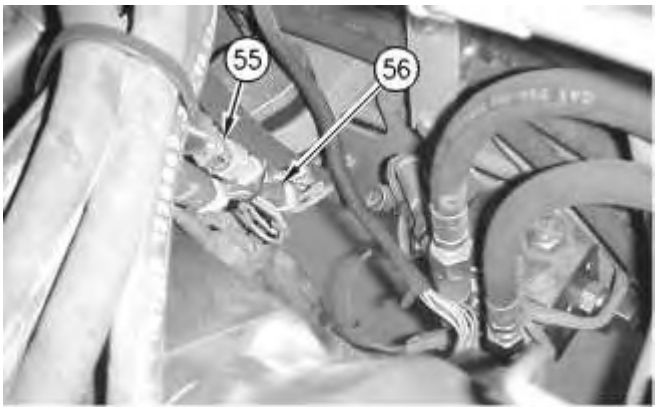

Illustration 4 g00753623

5. Connect three electrical connectors (56) and install strap (55) .

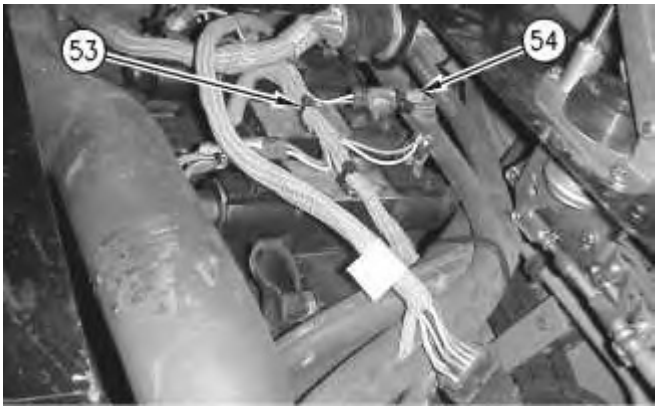

Illustration 5 g00753606

6. Connect seven electrical connectors (54) and install three straps (53).

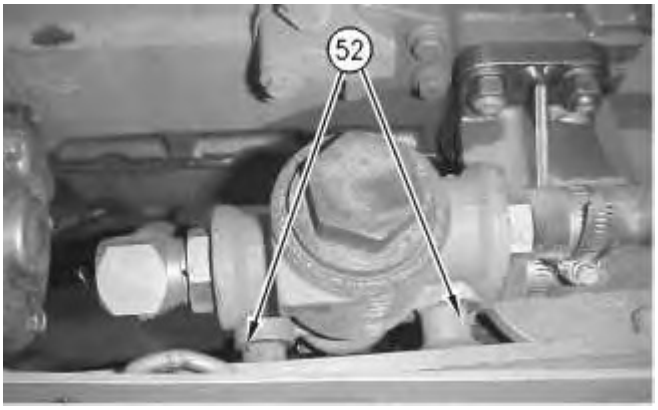

Illustration 6 g00753596

7. Install the valve and two bolts (52) .

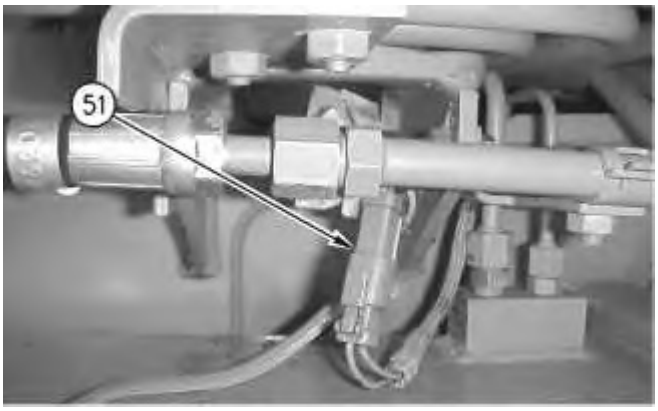

Illustration 7 g00753591

8. Connect electrical connector (51) .

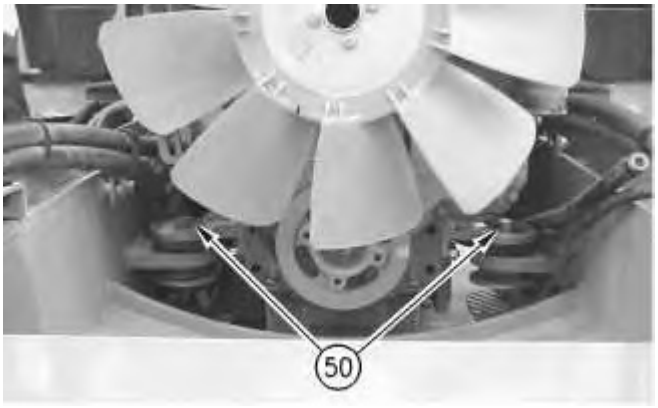

Illustration 8 g00753552

9. Install the washers and two engine mounting bolts (50). Tighten bolts (50) to 220 ± 30 N·m (160 ± 20 lb ft).

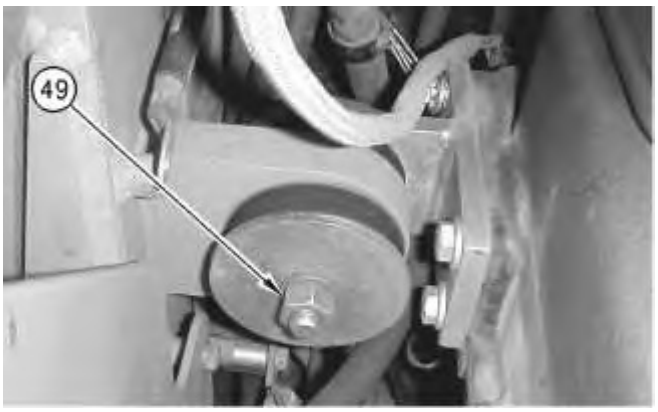

Illustration 9 g00753546

10. Install the washers and engine mounting bolt (49). Tighten bolt (49) to 220 ± 30 N·m (160 ± 20 lb ft).

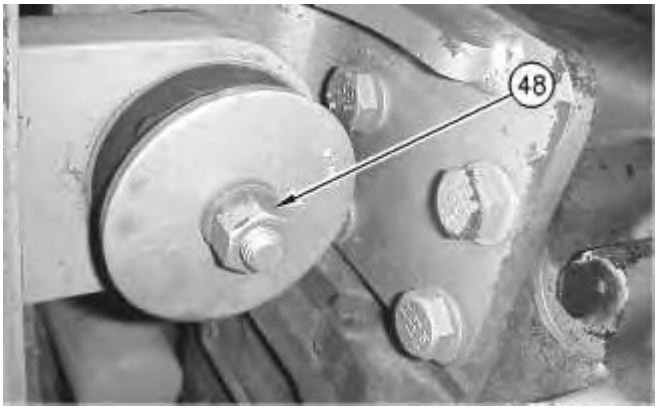

Illustration 10 g00753362

11. Install the washers and engine mounting bolt (48). Tighten bolt (48) to 220 ± 30 N·m (160 ± 20 lb ft).

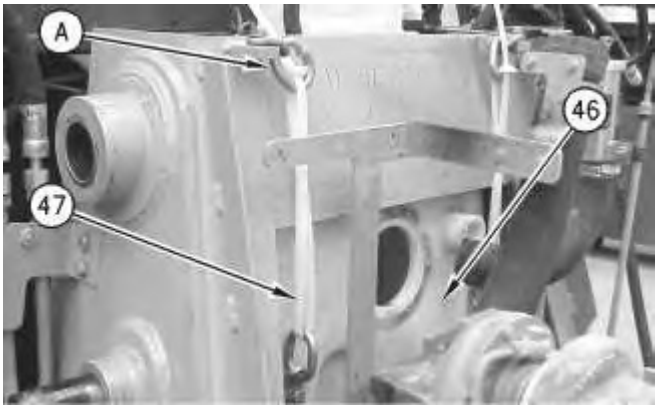

Illustration 11 g00753335

12. Remove tool (A) and two straps (47) from hydraulic tank (46) .

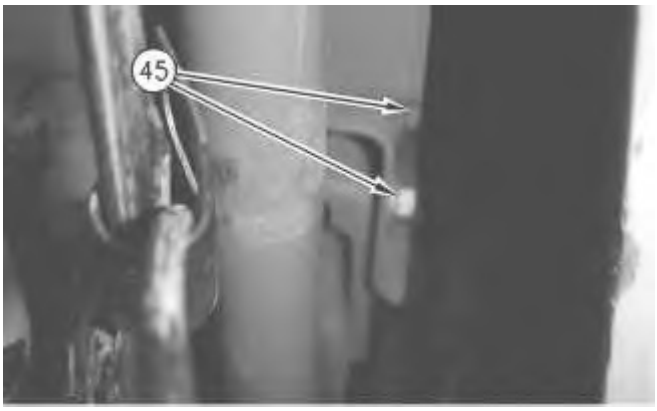

Illustration 12 g00753331

13. Install two bolts (45) .

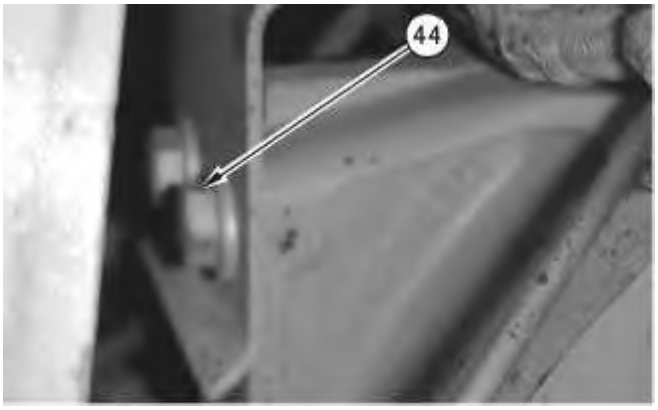

Illustration 13 g00753330

14. Install two bolts (44) .

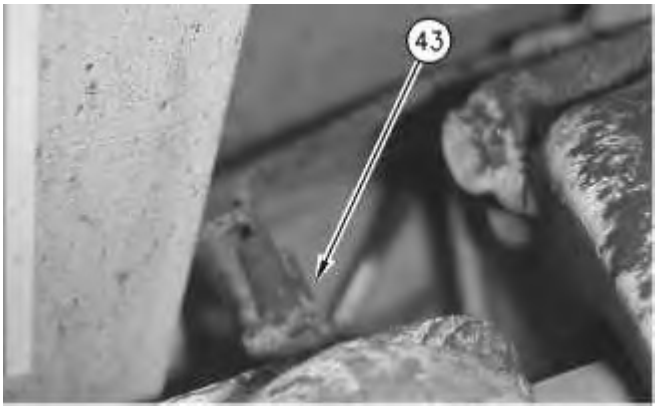

Illustration 14 g00753329

15. Connect connector (43) .

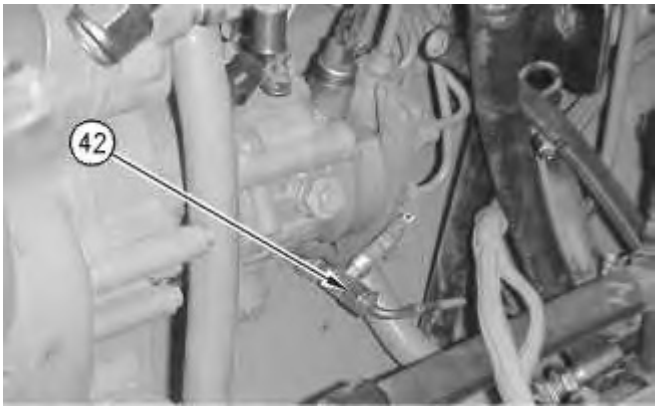

Illustration 15 g00753305

16. Connect test line (42) .

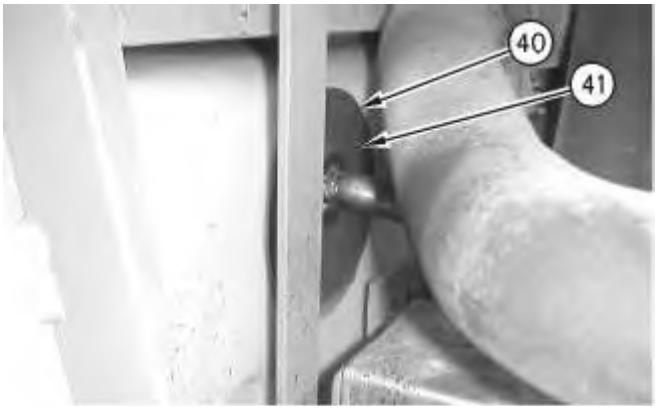

Illustration 16 g00753227

17. Install fitting (41) and six screws (40) .

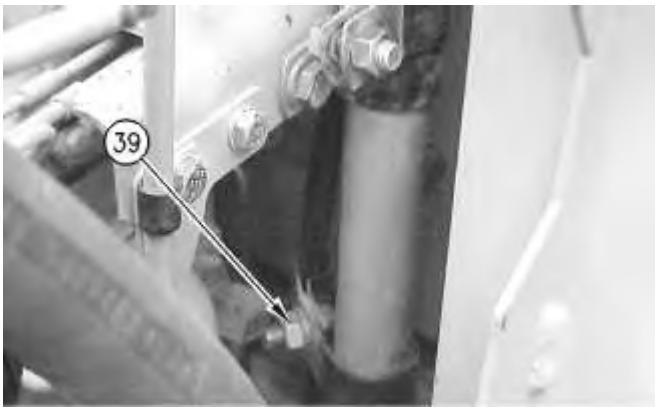

Illustration 17 g00753213

18. Install the bolt and clamp (39) .

Illustration 18 g00753201

19. Install the bolt and clamp (38) .

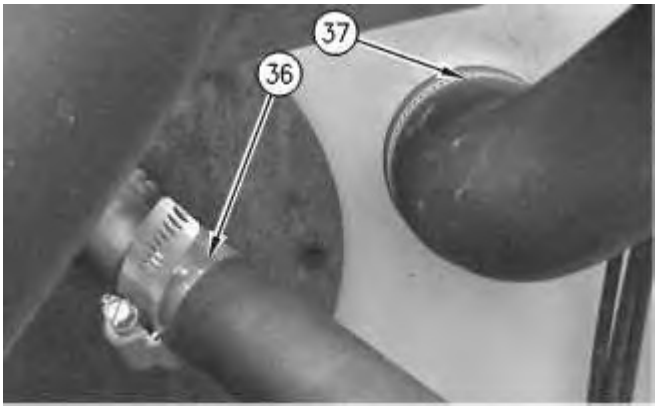

Illustration 19 g00753198

20. Connect hoses (36) and (37) .

Illustration 20 g00753185

21. Install bolt (35) .

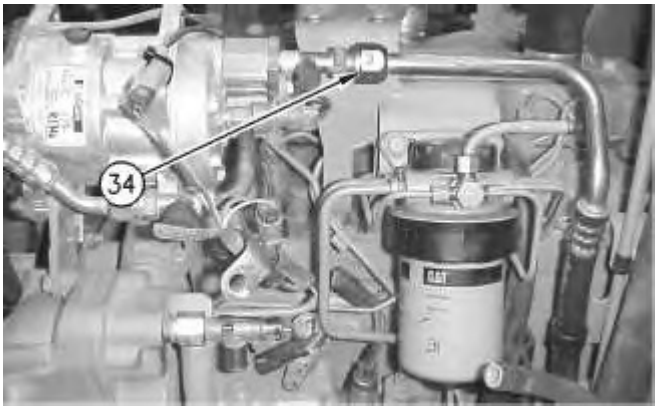

Illustration 21 g00752950

22. Connect line (34) .

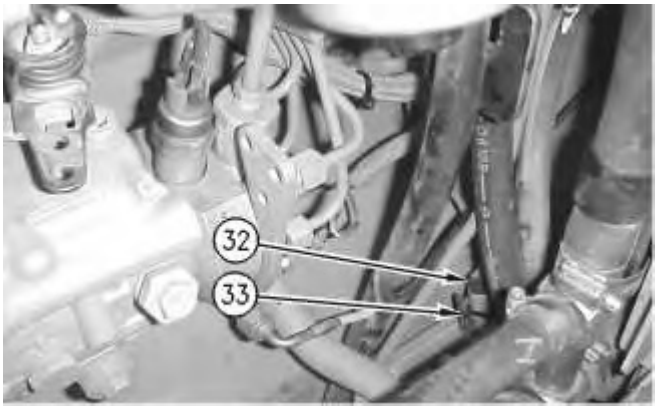

Illustration 22 g00752935

23. Connect connector (33) and install strap (32) .

Illustration 23 g00752929

24. Connect two wires (31) .

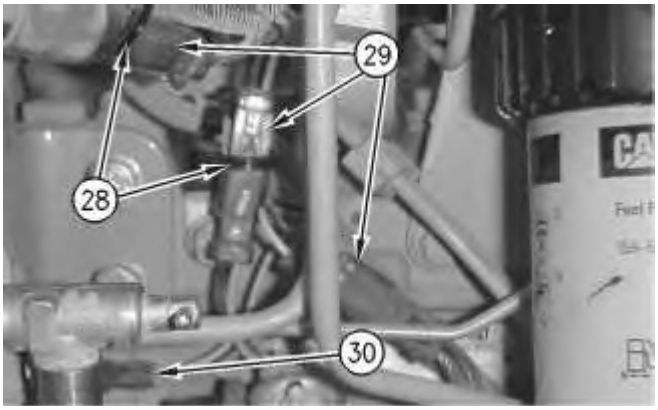

Illustration 24 g00752919

25. Connect two wires (30). Connect three connectors (29) and install two straps (28) .

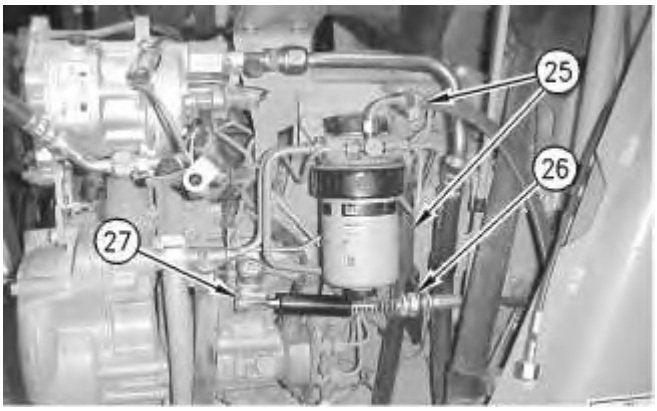

Illustration 25 g00752916

26. Connect two lines (25) and governor cable (27). Tighten nut (26) to 38 ± 2 N·m (28 ± 1.5 lb ft).

Illustration 26 g00752910

27. Install bolt (24) .

Illustration 27 g00752889

28. Connect two electrical connectors (23) .

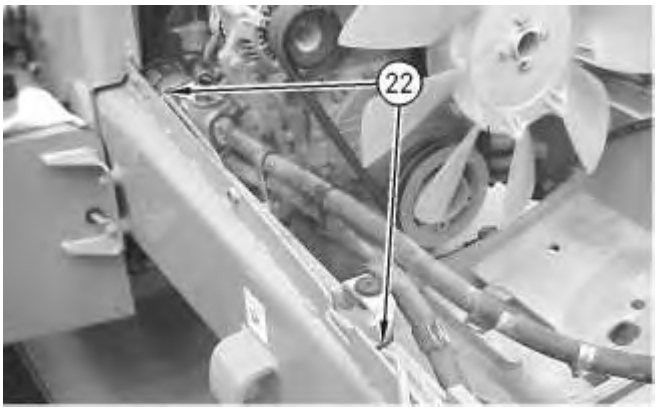

Illustration 28 g00752870

29. Install two straps (22) .

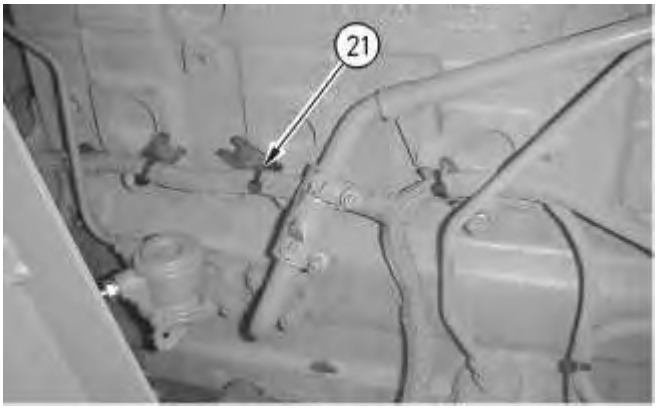

Illustration 29 g00752859

30. Install four straps (21) .

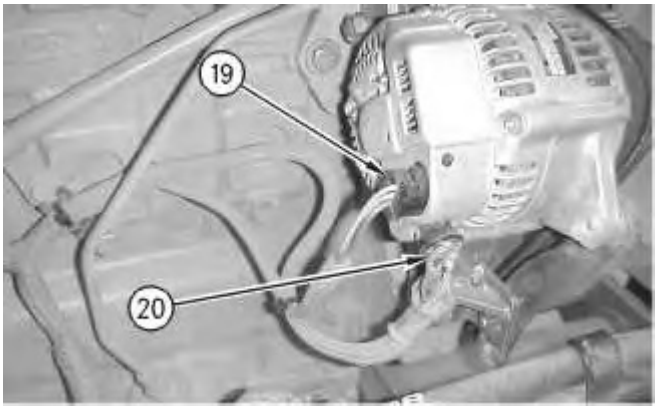

Illustration 30 g00752854

31. Connect connector (19) and wire (20) to the alternator.

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